

REMARKS

The Official Action of January 2, 2003, and the prior art relied upon therein have been carefully reviewed. The claims in the application are now claims 1, 3 and 6-8, and these claims define patentable subject matter warranting their allowance. Applicants respectfully request favorable reconsideration and allowance.

Acknowledgement by the PTO of the receipt of applicants' papers filed under §119 is noted.

The Abstract has been objected to. In deference to the examiner's views, an amended Abstract is presented herewith on a separate page.

Claims 4-8 have been objected to under Rule 75 as being in improper dependent form under U.S. practice. This informality has now been corrected by amendment presented above. Applicants respectfully request an examination on the merits of claims 6-8.

Claims 1-3 have been rejected as obvious under §103 from a combination of five (5) prior art documents, i.e. as obvious from Hayashi in view of Mucehiro, Novak, Williams and Koide. This rejection is respectfully traversed.

First, and with much respect, applicants cannot accept the obviousness of a combination of five different references for an invention of the present type. This is not a case where there is a basic reference which shows substantially everything except for a few details, and wherein several secondary references are then applied to fill in the details.

While there is a general rule that it matters not how many references are strung together so long as they collectively make obvious the subject matter sought to be patented, there is another general rule that the greater the number of references strung together, the less likely it is that the invention was truly obvious. In the words of Circuit Judge Medina in *Ling-Temco-Vought, Inc. v. Kollsman Instrument Corporation* (2d Cir., 1967) 152 USPQ 446,51:

It is apparent that the more numerous the references..., the less likely it becomes that a person having ordinary skill in the art would have arrived at the result reached by the patent in suit. ... [citations omitted].

In *Bela Seating Company, Inc. v. Poloron Products, Inc.*, 160 USPQ 646,61, the Court concluded that the stringing together of a plurality of patents in an "attempt to invalidate plaintiff's claims tends in and of itself to negate the position of defendant that the patent in suit is invalid."

Applicants do not wish to leave the impression that what is stated immediately above is applicants' main argument. It is not. Applicants' main argument is that even if the references were obviously combinable (respectfully traversed by applicants), applicants' invention would still not be achieved. In this regard, applicants first discuss the invention below, then the references individually, and then provide additional commentary on the proposed combination.

The present invention is envisaged to provide a slider unit capable of developing much higher propulsion than ever attained in any conventional slider, and moreover even made compact or slim in construction.

The major contributor to render the slider of the present invention slim in its construction lies in the specific construction of the magnetic yoke, in which sections having thereon field magnets are located in confronting relation to one another, and connected together with each other along any one side of the widthwise opposing sides while left open at another side to form a U-shape in transverse section thereof. This construction makes it possible to remarkably reduce the magnetic yoke in overall height.

On the other hand, the major factor of accomplishing such high propulsion resides in the construction of the moving-coil assembly, which includes the movable iron core of

plate-shape, and the armature coil wound in a direction intersecting the moving direction. That is to say, the armature coil is wound in a rectangular shape viewed in the moving direction.

Moreover, the armature coils are arranged in such close relation to one another that the coil sides thereof, making for the propulsion of the armature coil assembly, lie in both the upper magnetic flux and the lower magnetic flux, one to each flux, which are created between the upper field magnets and their associated iron core and also between the lower field magnets and their associated iron core, respectively. This construction can result in as much as a doubling of the propulsion. Besides, the armature coil used in the present invention, because of being constructed with three-phase armature coil, helps make the controller compact in construction.

The main citation, Hayashi '899, discloses a linear motor of magnet-moving type in which magnets 9, 39 are movable and magnet holding sections 8, 38 are connected with one another at their top ends. Inevitably, this linear motor itself must be large in overall height. Only the coil holding plate 4, 34 is shown as being flanked with the coils 3, 35, and those skilled in the art cannot be sure whether the coil holding plate can work well as the coil yoke. Moreover, the

detailed configuration or construction of the coil itself remains uncertain to those skilled in the art. Furthermore, the coil holding plate 4, 34 is placed in a way extending along the entire length of the stator supporting plate 7, 37.

It will be thus clear that the linear motor in Hayashi is neither made compact nor slim in construction, nor can it provide high propulsion. It is absolutely certain that the present claimed invention is quite different in inventive concept and in structure from the Hayashi citation.

The linear motor disclosed in the cited Munehiro '038 is the same as recited in "Description of the Prior Art" in the present specification. As seen in Fig. 2 of the cited reference, the center core 3 of the coil assembly 8 is fastened at the lengthwise opposite ends thereof to the side cores 4. With the construction disclosed in this citation, the center core 3 is much subject to warping, especially when the linear motor 109 is made long, and thus is liable to cause trouble including interference with the coil assembly 8. This prior linear motor is likely to become heavier in its entire structural weight and thus difficult to use.

Moreover, the coils 57A and 67B wound around the spool 56 are disposed parallel with the moving direction rather than intersecting with the moving direction. Thus, this cited construction is unsuitable for high propulsion.

The cited Williams '271, as shown in Fig. 10, discloses the coil 104 wound around the center leg of the E-shaped yoke 102. Nevertheless, the coil 104 is arranged in parallel with the moving direction instead of intersecting the moving direction. Thus, it will be understood that the construction in the cited Williams '271 can neither be made compact in construction nor can it be expected to produce high propulsion.

Kiode '355, as shown in Figs. 1 and 2, discloses a motor in which the yoke 4 is fastened to the base 4 while the coils 5 are movable. Applicants believe that this prior art motor would be like the Munehiro '038 motor discussed above, though the details of the three-phase coil 5 are unknown. In any event, the construction in Kiode '355 would become large-scale because of installation of the elongated yoke 2.

The cited Novak '889 discloses a construction in which the magnets 16, 17 lie perpendicularly in opposition to one another on the yoke 2 mounted on the floor support base 21 while the coils 11 extend downwards underneath the stage 12 in a way lying between the magnets 16, 17. However, there is no detailed explanation of the coils 5.

From looking at the illustrations of Novak '889, the magnets 16 and 17 appear to be small in size, while the coils 11 are comparatively large. It will be easily understood that

the construction in Novak '889 would be large-scale, and thus unsuitable for the motor of the present invention, which is intended to provide high propulsion even with a compact construction.

As regards any possible combination of these five diverse citations, applicants respectfully submit that they provide so many different options that, at best, coming up with applicants' construction from a consideration of these five documents together would be similar to discerning the combination of a safe by looking at the dial. There is nothing in the prior art which provides any motive or incentive for the selection of any particular elements from any particular prior documents for inclusion in and modification of Hyashi so as to achieve a construction which would be even remotely similar to what is claimed. In fact, applicants respectfully submit that there is no way that the claimed construction can be obtained from the five references in combination, even if such a combination were obvious, because even in combination (assuming *ad arguendo* that such a combination were obvious) the five citations do not show all the claimed features, as noted above.

Applicants respectfully request withdrawal of the rejection.

The prior art documents made of record and not relied upon have been noted, along with the implication that such documents are deemed by the PTO to be insufficiently pertinent to warrant their application against any of applicants' claims.

JP '767A discloses a linear motor having yokes 8, 9 of rectangular shape and coils 18 disposed irregularly, as shown in Figs. 3 and 4. But there is disclosed neither table and table means nor three-phase coils. Thus, this citation has no relation to the concept of providing the sliding means that can produce the high propulsion even through compact in construction.

JP '250A discloses a linear motor constructed as shown in Figs. 1 and 3, in which an elongated plate 3 of magnetic material is formed in an upwardly-opened U-shape in cross section while permanent magnets 1 are arranged lengthwise of the plate 3 at a preselected regular interval, and a center plate 4 of magnetic material is placed lengthwise at the widthwise middle of U-shape while permanent magnets 2 are arranged lengthwise of the plate 4 at a preselected regular interval. Windings 6 are laid in a frame of inverted U-shape across the center plate 4. Thus, this prior linear motor also would become large-scale in construction.


. . . In re of Appln. No. 09/931,850

Favorable reconsideration and allowance are
earnestly solicited.

Respectfully submitted,

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